

TITLE OF INVENTION: "A POOL ON THE SEA USING DEEP-SEA WATER AND
ITS SURROUNDING FACILITIES"

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A POOL ON THE SEA USING DEEP-SEA WATER AND
ITS SURROUNDING FACILITIES

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Background Art

[0001] The invention relates to a swimming pool on the sea and,
in particular, to a pool using deep-sea water.

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[0002] Swimming pools have been so far built on the ground or
indoors, or, for example, on the deck or indoors in a boat. They
have been using fresh water or tap water. That requires the
application of chemical substances such as chlorine and ozone or
other substances for killing bacteria for hygienic purposes.

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[0003] However, the above chemical substances introduced for
hygienic purposes irritate the eyes and skin of swimmers and, in
addition, may cause pain or uncomfortable feeling in the
swimmers.

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[0004] Also, pools in general have been built on the ground in
buildings and have been surrounded by concrete walls;
accordingly, they fail to give swimmers the feeling of openness
experienced when swimming at the seashore.

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[0005] Therefore, the invention seeks to provide a swimming pool and surrounding facilities where people can swim safely and health and a natural environment are promoted.

Summary of the Invention

[0006] It is an object to meet the above objectives and to provide a pool on the sea which uses pure and clean deep-sea water, and provides a deep-sea surrounding environment.

[0007] In other words, the invention may consists of any of the following embodiments:

(1) A pool which floats on the sea and uses deep-sea water, characterized by being equipped with a device for collecting deep-sea water.

[0008] (2) A pool which floats on the sea and uses deep-sea water, characterized by being built to float on the sea, equipped with a device for collecting deep-sea water and moored at a fixed location by a mooring device such as an anchor.

[0009] (3) A pool which floats on the sea and uses deep-sea water, characterized by being built to float on the sea, equipped with a device for collecting deep-sea water and with a propulsion device such as a propeller.

[0010] (4) A pool which floats on the sea and uses deep-sea water according to any one of the embodiments (1) through (3) above, and further characterized by having a large number of extensions hanging from the bottom surface.

[0011] (5) A pool which floats on the sea and uses deep-sea water according to any one of the embodiments (1) through (4) above, and further characterized by being equipped on its side with equipment for draining deep-sea water.

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[0012] (6) A pool which floats on the sea and uses deep-sea water according to the embodiment (5) above, and further characterized by being equipped with facilities for fishing on its side.

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[0013] (7) A pool which floats on the sea and uses deep-sea water according to any one of the embodiments (1) through (6) above, and further characterized by being equipped with a means for generating fine air bubbles to be mixed with the deep-sea water supplied to the pool.

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[0014] (8) A pool which floats on the sea and uses deep-sea water according to any one of the embodiments (1) through (7) above, and further characterized by being equipped with a means for solar power generation.

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[0015] (9) A pool which floats on the sea and uses deep-sea water according to any one of the embodiments (1) through (8) above, and further characterized by being equipped with a means for wind power generation.

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[0016] (10) A pool which floats on the sea and uses deep-sea

water according to any one of the embodiments (1) through (9) above, and further characterized by being equipped with a desalination device for the deep-sea water.

5 [0017] (11) A pool which floats on the sea and uses deep-sea water according to any one of the embodiments (1) through (10) above, and further characterized by the fact that the device for collecting deep-sea water has a check valve which only allows passage of an upward flow.

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[0018] (12) A pool which uses deep-sea water, characterized by being built ashore and equipped with a device for collecting deep-sea water.

15 [0019] (13) Accommodating facilities use deep-sea water and are characterized by being constructed onshore and equipped with equipment for deep-sea water supply connected through a pipe to a deep-sea water collecting device.

20 [0020] (14) Dining facilities use deep-sea water and are characterized by being placed onshore and equipped with equipment for deep-sea water supply connected through a pipe to a deep-sea water collecting device.

25 [0021] (15) Facilities such as beauty shop and fitness gymnasium use deep-sea water and are characterized by being placed onshore

and equipped with equipment for deep-sea water supply connected through a pipe to a deep-sea water collecting device.

[0022] (16) Fish breeding facilities use deep-sea water, and are characterized by being placed onshore or near the seashore and equipped with equipment for supplying deep-sea water connected via pipe to a deep-sea water collecting device or to a deep-sea water drain used in any one of the embodiments (12) through (15) above.

[0023] (17) Fishing pond facilities use deep-sea water and are characterized by being placed onshore or near the seashore and equipped with equipment for supplying deep-sea water connected via pipe to a deep-sea water collecting device or to a deep-sea water drain used in any one of the embodiments (12) through (15) above.

[0024] (18) Hydroponic facilities use deep-sea water and are characterized by being placed onshore or near the seashore and equipped with equipment for supplying deep-sea water connected via pipe to a deep-sea water collecting device or to a deep-sea water drain used in any one of the embodiments (12) through (15) above.

Brief Description of the Drawings

[0025] Fig. 1 illustrates a pool in the sea using deep-sea water and the surrounding facilities according to the present invention.

[0026] Fig. 2 is a perspective view of one example of a pool in the sea using deep-sea water according to the present invention.

[0027] Fig. 3 is a cross-sectional view of another example of a pool in the sea using deep-sea water according to the present invention.

[0028] Fig. 4 is a perspective view of yet another example of a pool in the sea using deep-sea water according to the present invention.

[0029] Fig. 5 illustrates the surrounding facilities of a pool in the sea using deep-sea water according to the present invention.

[0030] Fig. 6 is a flow chart of the deep-sea water usage according to the present invention.

Embodiments

[0031] A description will be given below of embodiments of the present invention referring to the accompanying drawings.

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[0032] Fig. 1 illustrates a pool in the sea using deep-sea water and the surrounding facilities according the invention; Fig. 2 is a perspective view of one example of a pool in the sea using deep-sea water according to the invention; Fig. 3 is a cross-sectional view of another example of a pool in the sea using deep-sea water according to the invention; Fig. 4 is a perspective view of another example of a pool in the sea using deep-sea water according to the invention; Fig. 5 illustrates the surrounding facilities of a pool in the sea using deep-sea water according to the invention; and Fig. 6 is a flow chart showing the use of deep-sea water according to the invention.

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[0033] In the drawings, 1 represents a pool in the sea which uses deep-sea water according to the invention; 2 is an intake pipe for the deep-sea water; 2a is an intake; 2b a water inlet; 3 an anchor; and 3a a rope which connects the pool in the sea to the anchor.

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[0034] Numerals 5a, 5b, 5c and 5d are pumps; 6 is a deep-sea water pumping structure; 7 refers to deep-sea water draining equipment; 7a a drain outlet; 8 a float for making the pool

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buoyant on water; 9 a propeller for propulsion used to move the pool in the sea; 10 extensions which protrude from the bottom surface of the pool; and 10a boards of a sheet shape which prevent the pool from swaying.

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[0035] Numeral 11 is a rope; 12 a deep-sea water storage tank; 13 a pool on land at the beach that uses deep-sea water; 14 desalination equipment; 15 a post; and 16 a hotel for accommodation built at the beach.

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[0036] Moreover, 17 refers to facilities for fishing in the sea; 18 is a means for generating fine air bubbles; 19 a solar array; 20 a partition; 21 a forked intake pipe; 22 a shower provided on the deck of the pool in the sea; 23 a wind power generator; 1a a deck; and 1b an air permeable shade fence.

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[0037] The pool 1 which floats on the sea according to the invention can be freely designed in a size and shape best suited for the location and the purpose for which it is to be built.

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[0038] Fig. 1 illustrates a rectangular parallelepiped shape, but any shape, for example cylindrical or cubical, can be adopted as far as it floats on the sea.

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[0039] The pool 1 is designed as a floating structure which can be assembled in the sea. The structural materials of the pool

walls may be wood, metal (preferably stainless steel), concrete, glass and plastics, closed-cell porous materials such as, for example, styrene foam, are preferred materials.

5 [0040] It is desirable that the pool 1 be made of a transparent material in some parts so that people can see underwater when swimming in the pool or staying at the pool side (deck 1a). A material such as fiber-reinforced plastic (FRP), which is sturdy and transparent, making it possible to watch fish in the water,
10 etc., is particularly desirable.

15 [0041] It is also possible for the pool 1 to use in part sturdy material, such as concrete, and use a transparent material only for portions where it is convenient to see while swimming with walls made of glass or plastic. By combining a sturdy material of metal or concrete with a transparent material of glass or plastic, it is possible to construct a more durable pool 1 on the sea.

20 [0042] Further, the pool 1 can be equipped with a device which provides buoyancy, such as a float 8 (or a buoy or styrene foam, etc.) in order to ensure safety. For example, it would be preferred that floats such as rubber inner tubes, used tires, or styrene foam are attached to the pool 1 around its perimeter.

25 [0043] Also, it would be desirable to install a fence consisting

of an air permeable shade around the pool side (deck 1a) in order to increase the safety on the pool 1.

[0044] As shown in Fig. 1, the pool 1 is supplied deep-sea water through the intake pipe 2, the forked intake pipe 21, the deep-sea water pumping structure 6, and the water inlet 2b.

[0045] As used herein, deep-sea water refers to sea water at depths where the sunlight does not reach, and which does not vary much in quality, and has a low temperature of about 5 degrees centigrade.

[0046] Also, it is rich in inorganic salts, particularly phosphates, nitrates and silicates, which are required for the growth of photosynthetic algae (plant plankton) and are preferably contained in stable composition ratios. Further, it preferably contains few parasitic species producing parasites on fish and shellfish, few microorganisms, and is comparatively free of heavy metals and artificial pollutants, and accordingly it features high cleanliness.

[0047] Deep-sea water with these unique characteristics has recently come to be considered effective for the therapy of skin diseases, in particular atopic dermatitis.

[0048] The pool on the sea according to the present invention

aims to effectively use such deep-sea water for these unique characteristics.

[0049] The invention is described below referring to the drawings.

[0050] As shown in Fig. 1, the intake pipe 2 for deep-sea water according to the invention has an intake 2a and a water inlet 2b. The intake 2a is placed to collect deep-sea water from the sea. The collected deep-sea water is supplied to the pool 1 via the water inlet 2b by the pump 5a of the deep-sea water pumping structure 6. The intake pipe 2, therefore, may be any device which can supply the deep-sea water to the pool 1.

[0051] For example, the arrangement may be such that the intake 2a at the end of the intake pipe 2 is placed at a location for collecting deep-sea water in the sea, the deep-sea water is drawn therefrom by the pump 5a provided at the other end of the intake pipe 2, and the deep-sea water is conveyed via the water inlet 2b through a water pipe from the pump 5a to the pool 1.

[0052] The pool 1 is further equipped with an anchor 3 or the like which moors the pool 1 at a fixed location, and, accordingly, it is safely secured.

[0053] A post 15 for mooring is put up at the seashore to which

the pool 1 is tied by a strong rope 11 or the like according to the pool size or the location where the pool is moored, so that safety can be further ensured.

5 [0054] Also, the pool 1 has a propulsion device. A propeller 9, for example, is provided as a propulsion device, and the pool is movable. It is desirable to equip the pool 1 with a solar array 19 for generating solar power (see Fig. 2) or a wind power generator 23 (see Fig. 4) as the power source for the propulsion device driving the propeller 9; however, any suitable means may be used to drive the propeller 9 and the invention is not limited to the above.

10 [0055] In addition, the pool 1 may include a number of extensions 15 10 which protrude from its bottom surface.

[0056] The pool 1 is capable of floating on the sea away from the shore, and, accordingly, there is a possibility that it may be attacked by sharks or other sea creatures that tend to be aggressive. It would be desirable, therefore, to provide shields on the bottom surface of the pool 1 in order to avoid such attacks from sea creatures so that the safety of the pool can be maximized.

20 [0057] For example, stripe-shaped extensions 10 may be provided on the bottom surface of the pool 1 to protect the pool from

attacks by sea creatures. In addition, sheet-shaped boards 10a may be used to prevent the pool 1 from swaying with the waves as well as to protect from the attack by sea creatures.

5 [0058] If the extensions 10 are light weight, they would sway with the waves or the underwater current and frighten sea creatures, and thereby prevent them from approaching.

10 [0059] As the extensions 10 are provided on the bottom surface of the pool 1 for the purpose of preventing attacks by such sea creatures, they may have any shape or be provided by any means so long as they can prevent such attacks.

15 [0060] Moreover, a device for generating frequencies which sea life, such as sharks, hates, may also be provided.

[0061] Deep-sea water is supplied to the pool 1 from the intake 2a of the intake pipe 2 placed at the bottom of the sea through the pump 5a by the deep-sea water pumping structure 6.

20 [0062] However, if the supplied deep-sea water is not maintained fresh at all times, it loses its deep-sea water characteristics. For this purpose, the pool 1 is equipped with deep-sea water draining equipment 7 so that, while deep-sea water is flowing in,
25 water is being drained by the pump 5b and the deep-sea water is always maintained fresh. This arrangement provides the most

effective use of the deep-sea water properties in the pool 1.

[0063] In addition, the deep-sea water draining equipment 7 allows to drain all of the deep-sea water and makes the work easier when moving the pool on the sea or cleaning the pool 1. In order to facilitate the drainage of all the deep-sea water, the pool 1 may have a slanted bottom surface.

[0064] The pool on the sea 1 using deep-sea water according to the invention aims to provide facilities where various people can use safely and enjoy a pleasant time. It also aims to provide a space where people spend time in the natural environment without damaging the nature.

[0065] Then, as shown in Fig. 2, it is possible to enjoy watching fish, sun bathing, and napping in the sea air, as well as swimming in the pool 1 on the sea. It is also possible to refresh the body if the pool is equipped with a device for generating bubbles using deep-sea water.

[0066] Since it is an object to provide facilities for users to enjoy pleasant time in a natural environment, it is desirable, for example, to equip the side of the pool 1 with fishing facilities 17. Especially, if a drain outlet 7a for the deep-sea water is placed near the fishing facilities 17, it will be an ideal fishing site, since fish are fond of deep-sea water and

gather around it.

[0067] Also, the pool 1 may be designed with a sufficient depth to enjoy diving in addition to swimming. In this case, if a partition 20 (as shown in Fig. 3) is used at a depth suitable for swimming in the pool 1, it will provide safety for the swimmers.

[0068] Diving in the pool 1 would be less dangerous than diving directly into the sea and would be appropriate for practicing diving.

[0069] In addition, the pool 1 may be equipped with a device for generating fine air bubbles.

[0070] A device for generating fine air bubbles 18 makes it possible to effectively dissolve air into the deep-sea water in the pool 1, and thereby to purify the water. Further, fine bubbles generated in the deep-sea water provide an excellent visual effect for swimmers.

[0071] The pool on the sea that is using deep-sea water according to the invention may be equipped with a means for solar power generation (for example, a solar array 19; shown in Fig. 2) or a means for wind power generation 23 (shown in Fig. 4), which are power generating means from natural sources. Such arrangement may be used to energize the propeller 9 of the propulsion device,

the pump 5a of the deep-sea water pumping structure 6, the pump 5b of the draining equipment 7, and the like.

[0072] Further, solar power may be used for pumping the water using a solar cell, for example, and the wind power generator can be jointly used for pumping.

[0073] Also, the pool 1 may be equipped with a desalination device for the deep-sea water. Equipped with such desalination device (not shown in the drawing), one can wash with fresh water using a shower 22 on the deck 1a after swimming in the pool 1 or during a rest. The fresh water can be further used for drinking.

[0074] The pool 1 can be, of course, filled with desalinated deep-sea water and be a pool on the sea that uses fresh water derived from deep-sea water.

[0075] Swimmers can swim and choose either the deep-sea water or the desalinated deep-sea water when swimming in the pool or resting on the deck 1a.

[0076] In addition, the device for collecting deep-sea water may be equipped with a check valve attached to the pool 1 which only passes an upward flow (not shown in the drawing), so that the deep-sea water pumped into the pool or the deep-sea water to be supplied to the surrounding facilities can be prevented from

flowing backward and draining.

[0077] The pool in the sea using deep-sea water according to the invention may have surrounding facilities that also use deep-sea water, so that the pool can provide deep-sea water properties sufficiently to the people who come to swim in the pool.

[0078] As shown in Fig. 5, for example, deep-sea water is collected from the intake pipe 2 connected to a deep-sea water storage tank 12 on the beach or seashore. The tank 12, which is connected by pipes to deep-sea water supply equipment, provides to a pool 13 on land at the beach deep-sea water, as well as to a hotel 16, to dining facilities 24 and to beauty shop facilities and a fitness gymnasium, and the deep-sea water can also be used in other facilities built on the beach or seashore.

[0079] The pool 13 on land at the beach using deep-sea water can use water collected from the intake pipe 2 by the deep-sea water collecting equipment through the storage tank. The pool on land 13 can be used for enjoying swimming in deep-sea water regardless of the weather or the hour of the day at sea.

[0080] For example, if a roof is arranged over the pool 13 on land, it allows swimmers to enjoy swimming even in the rain or at night without fear of dangerous sea life.

[0081] In addition, if the deep-sea water collected from the intake pipe 2 is desalted to fresh water by desalination equipment 14, it allows swimmers to swim in the pool on land either using salty deep-sea water (before desalination) or fresh deep-sea water after desalination.

[0082] The pool can be built close to the hotel, and thus, used more easily for swimming than the pool on the sea 1.

[0083] A hotel may be built at the beach and equipped with deep-sea water supply equipment connected by a pipe to the deep-sea water collecting equipment, so that deep-sea water can be used in various facilities in the hotel.

[0084] For example, if the deep-sea water can be supplied by pipes to the bathrooms in the hotel 16 from the deep-sea water supply equipment, it is possible to use either fresh water or deep-sea water for a bath or a shower in the bathroom.

[0085] If the deep-sea water after desalination by the desalination equipment 14 is supplied to the hotel 16, it further can be used as drinking water and for cooking, etc., in the hotel 16.

[0086] As mentioned above, the dining facilities 24 and the beauty shop/fitness gymnasium 25 may be built on the beach

equipped with the deep-sea water supply equipment connected to a pipe from the deep-sea water collecting equipment.

[0087] The dining facilities 24, for example, may include a restaurant or a bar, where it is possible to serve food prepared using the deep-sea water and fresh fish provided from the fish breeding facilities 27, which also can use deep-sea water as mentioned below.

[0088] The beauty shop/fitness gymnasium facilities may include a sports gym which offers deep-sea water showers and Jacuzzis and a beauty salon, which offers face/body packs, massage and shampooing that use deep-sea water.

[0089] It is contemplated according to the invention that the deep-sea water used by the pool 13 on land, accommodation facilities (e.g. a hotel 16), etc., in the surrounding facilities can be further used as described below.

[0090] The water drained from the pool 13 built on the beach, the hotel 16, and the dining facilities 24, as well as the used deep-sea water from the beauty shop/fitness gymnasium 25, can be treated by the waste water treatment equipment 26 connected by pipes to the deep-sea water drains at these facilities. The treated water can then be supplied to other facilities.

[0091] For example, as shown in Fig. 5, the deep-sea water used and drained by the pool 13, the hotel 16, the dining facilities 24 and the beauty shop/fitness gymnasium 25 built on the beach, is conveyed to and treated by the waste water treatment equipment 26 and supplied to the fish breeding facilities 27, fishing pond facilities 28 or hydroponic facilities 29 built on the beach or at the seaside.

[0092] The fish breeding facilities 27, which use deep-sea water already used by the above facilities, can provide fresh fish that are bred in the deep-sea water for dishes served at the dining facilities 24 or the hotel 16.

[0093] Also, the fishing pond facilities 28, which may use the already used deep-sea water, can provide the enjoyment of fishing the fish that are bred in the deep-sea water without wasting the deep-sea water.

[0094] The hydroponic facilities 29, which can use deep-sea water that has been treated for reuse, are arranged so that vegetables or rice can be cultivated by desalinated deep-sea water. Since such vegetables and rice are thought to be healthy and highly nutritious, they can be cooked for dishes served at the hotel 16 or the dining facilities 24.

[0095] Obviously, the fish breeding facilities 27, fishing pond

facilities 28 and the hydroponic facilities 29 can use not only the deep-sea water after it has been used in the hotel 16 or the pool, but also fresh deep-sea water.

5 [0096] It is also desirable that deep-sea water desalinated at the desalination equipment 14 is used in the facilities described above.

10 [0097] Accordingly, the use of the deep-sea water, from collection through supplying, is described below and in the flow chart of Fig. 6.

15 [0098] The deep-sea water goes through the intake pipe 2 and is separated by a switching valve 4a to the intake pipe 2 and the forked intake pipe 21. The deep-sea water which passes through the forked intake pipe 21 is conveyed to the pool on the sea 1 via the pump 5a.

20 [0099] The deep-sea water which passes through the intake pipe 2 is stored in the storage tank 12 via the pump 5c. The stored deep-sea water passes through the pipe and is separated by a switching valve 4b to a forked intake pipe 21a and by the pipes which convey the deep-sea water to particular facilities.

25 [0100] The deep-sea water which passes through the forked intake pipe 21a is conveyed to the desalination equipment 14, and is

desalinated to form fresh water. The salt minerals produced by desalination is processed into commercial or consumer salt at a salt manufacture equipment 30.

5 [0101] Then, the fresh water made from deep-sea water is separated by a switching valve 4c to the pipes for the hotel 16 and the pool 13, and to the pipes for the fish breeding facilities 27 and hydroponic facilities 29, and is conveyed to these facilities through valves that control access to each of
10 the facilities.

15 [0102] On the other hand, the deep-sea water that is not conveyed to the forked intake pipe 21a by the switching valve 4b, is not desalinated and is conveyed to the facilities, e.g., the hotel 16, the pool 13, etc., by the switching valves set at each of the facilities. For example, at the hotel 16, the water may be used in the bath or showers.

20 [0103] In this case, it would be preferable to arrange pipes in the hotel 16 so that the deep-sea water desalinated at the desalination equipment 14 and non-desalinated deep-sea water can be used at the appropriate places within the hotel (e.g. desalinated water would be supplied to drinking faucets while sea water would be supplied to showers or toilets, for example).

25 [0104] Then, the deep-sea water used at the hotel 16, the pool

13, the dining facilities 24, and the beauty shop/fitness gymnasium 25, etc., is gathered into the waste water treatment equipment 26 and treated.

5 [0105] The treated water is further conveyed and used in facilities such as fish breeding facilities 27, fishing pond facilities 28 and hydroponic facilities 29.

10 [0106] The water conveyance system may be arranged in a manner such that the deep-sea water used at the fish breeding facilities 27 and the fishing pond facilities 28, etc., can be treated again at the waste water treatment equipment, and again used in the facilities, so that the deep-sea water can be used as efficiently as possible.

15 [0107] The collected deep-sea water is thus used in a closed system, i.e. the used waste water is not discharged at sea, making the system of the invention environmentally friendly technology that does not generate environmental pollution.

20 [0108] As mentioned above, the pool on the sea that uses deep-sea water according to the invention provides the following various advantages:

25 [0109] (1) Bathing in the health promoting deep-sea water of the open sea is possible.

[0110] (2) If the pool is equipped with a propeller of a propulsion device, the pool on the sea can be moved to a desired location by itself, for example, out to sea during the day and close to shore at night.

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[0111] (3) If the pool has extensions from its bottom surface, they prevent sharks from approaching, as well as absorb the swaying from the waves, making the entire pool stable and the deep-sea water therein still.

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[0112] (4) If the pool is equipped with a deep-sea water draining equipment and fishing facilities, it is provided an ideal fishing site because varieties of fish like the deep-sea water and gather.

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[0113] (5) If the pool is equipped with a means for generating fine bubbles in the deep-sea water supplied to the pool, the fine bubbles act on the body's skin and facilitate blood circulation, thus providing a beneficial effect on health and beauty.

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[0114] (6) If the pool is equipped with a solar power generation means, the self-generated energy can run the propeller or the pumps for the deep-sea water during the day.

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[0115] (7) If the pool is equipped with a wind power generation means, power can be generated even when the solar power is

insufficient to run the pump or other powered equipment.

5 [0116] (8) If the pool is equipped with desalination equipment for desalinating the deep-sea water, the desalinated deep-sea water can be supplied to the pool.

10 [0117] (9) If the pool has a check valve which only allows an upward flow, the phenomenon of back-flow that may occur during low tide can be prevented.

15 [0118] (10) If the pool is at the beach and equipped with deep-sea water collecting equipment, swimmers can enjoy swimming without worrying about the weather or other hazards that exist in the open sea.

20 [0119] (11) In the accommodation facilities built on the beach and equipped with deep-sea water supply equipment, the deep-sea water can be used for drinking water (once desalinated) and in a bath or the shower.

[0120] (12) If the dining facilities built on the beach is equipped with deep-sea water supply equipment, it can serve dishes and beverages using the deep-sea water to users.

25 [0121] (13) If the beauty shop/fitness gymnasium built on the beach is equipped with deep-sea water supply equipment, it can

use the deep-sea water for washing hair, packs, massages, and the Jacuzzi, etc.

5 [0122] (14) The fish breeding facilities built on the beach or shore can use the deep-sea water already used at the various facilities, can breed fish in the deep-sea water without just wasting it and also provide fresh fish for the dining facilities.

10 [0123] (15) The fishing pond facilities built on the beach or shore can use the deep-sea water already used at the various facilities, and can provide nice facilities for fishing without just wasting the deep-sea water.

15 [0124] (16) The hydroponic facilities built on the beach or shore can use the desalinated deep-sea water already used at the various facilities, making hydroponic cultivation possible without just wasting the deep-sea water.